

Subject: CALFED Bay-Delta Red Flag Review of "Footprint" project descriptions provided for review April 8, 1997.

The Fish and Wildlife Service has completed a red flag review of the draft reservoir "footprint" documents which will be used for assessment of alternative components that are not likely to change. We have the following comments:

Our understanding is that these documents were prepared to provide documentation for a second level of alternative screening. The information contained is appropriate for this purpose. However, the "footprints" providing project descriptions for evaluation in the environmental impact statement, should contain only the Facilities Descriptions. The Cost Estimates and Environmental Considerations sections should be removed.

These documents are extremely general and the information too limited for meaningful environmental impact analysis. In addition, the most current data bases have not been used. To assist in CALFED's data gathering, for each reservoir site we are providing current copies of the Service's species list, the Department of Fish and Game Natural Diversity Data Base, as well as comments and guidance associated with threatened, endangered, and sensitive species. However, because of the short review period, these should not be considered all inclusive. (Enclosures 1-6)

Additionally, the "footprints" can not appropriately describe downstream effects until operations are known. The potential for upstream, downstream and service area affects should be acknowledged but no more until sufficient information is available to make these determinations.

During our red flag review, staff identified a number of issues which will need to be considered during impact analysis but should not be included in the project descriptions. We are providing these for use in preparing the Environmental Impact Report/Environmental Impact Statement. For all sites the direct, indirect, and cumulative effects as well as interrelated, interdependent and growth inducing effects will also need to be evaluated. Costs for environmental documentation and mitigation should be included in making estimates of project costs.

LOS BANOS GRANDES

See attached comment sheet associated with botanical concerns. The Service has expressed and continues to express significant concern for the resources which would be adversely affected by this project--direct site effects as well as effects on the Delta. Six of the species discussed in the report as being observed at the site are federally listed -- the San Joaquin Kit Fox, peregrine falcon, willow flycatcher, the red-legged frog, bald eagle, and the blunt-nosed lizard. As discussed in the attached comments, the project could place the Arubra Ranch jewelflower (*Streptanthus insignis* ssp. *lyonii*) in danger of extinction.

The following are concerns and additional information needs for impact analysis of project affects on the San Joaquin kit fox including loss of dispersal corridor, loss of gene flow, loss of only known population inhabiting Valley floor grasslands, preclusion of recovery, loss of 13,000 acres of denning and foraging habitat, loss of 12-28 individuals, loss of 50 known kit fox dens and 425 potential dens, potential isolation of up to 65 kit foxes, loss of habitat from off-site borrow pits, loss of habitat and dispersal ability resulting from the construction of conveyance facilities, impacts from associated activities such as recreation, road realignment, operations and maintenance, etc, increased competition and mortality on the kit fox from the non-native red fox and mortality from feral dogs, increased rodenticide use, a proposed mitigation or management plan, and baseline information for project area or mitigation sites.

Considerations associated with the blunt-nosed leopard lizard include

identification of survey procedures, identification of suitable habitat, identification of the proximity of historical sightings, loss of habitat from off-site borrow pits, loss of habitat resulting from the construction of conveyance facilities, impacts from associated activities such as recreation, road realignment, operations and maintenance, etc., increased rodenticide and pesticide use, impacts on burrows and egg deposits from feral pigs, a proposed mitigation or management plan, and baseline information for project area or mitigation sits.

Other species of concern potentially at the site include California red-legged frog, burrowing owl, Giant kangaroo rat, California tiger salamander, Foothill yellow-legged frog.

The sycamore woodland is rare, the largest remaining in the state, and potentially unmitigable. It provides significant habitat values to a variety of wildlife species. If mitigable, significant amounts of mitigation would be required. Consideration of the costs associated with attempting mitigation of this size should be part of evaluating project costs.

The effects of retiring the 250,000 acres of toxic agricultural lands targeted in the 1990 San Joaquin Valley Drainage Program should be evaluated in determining the need for new south of Delta storage and reservoir capacity.

The document will need to objectively evaluate how the project will affect the Delta, including how pumping will improve water quality for the SWP and will reduce Delta fisheries impacts as discussed in the document.

MONTGOMERY RESERVOIR

See attached comment sheet for sensitive species concerns. Of particular concern is that the project would adversely affect one of the sixteen remaining populations of the federally listed endangered Hartweg's golden sunburst (*Pseudobahia bahiifolia*). The discussions in the "footprint" document concerning the environmental considerations appears confused and not very meaningful.

The information in this "footprint" document provides little useful information for impact analysis. The document states that the reservoir would be used for environmental or water quality purposes but all it targeted for local use. How would this site contribute to the Bay-Delta ecosystem improvements.

Compensation costs associated with reservoir construction and mitigation would need to be considered.

The background section needs to be rewritten to accurately describe historical events and existing conditions. Flows which are discussed as unappropriated flows from the 1966 study which may be appropriated at this time. Water or the percentage of water that would be used to improve Delta water quality or to improve environmental conditions has not been identified.

SHASTA ENLARGEMENT

See attached comments concerning sensitive species.

CALFED should demonstrate that demand reduction options have been incorporated, and that the development will benefit the ecosystem and not just increase water supplies for water users.

The Calfed documents state that cost estimates do not include environmental documentation. It also does not include mitigation costs. These should both be considerations as they can have a significant effect. The program for the CVPIA Least-Cost Yield Increase Plan doubled construction costs when estimated

mitigation costs were included.

Unless flood control and increased electrical power production are goals of CALFED they should not be cited as benefits to the project.

Increased water availability to improve flow management for fisheries is cited as a benefit to the project, but they neglect to mention that the recently completed temperature control device also provides this benefit, and it is not clear that increased storage of water is now needed. It is also not certain that new water would in fact be used for fisheries management.

No mention is made of impacts due to decreased flows in the Sacramento River below the dam, especially potential reduction in environmentally beneficial high flows; e.g., flushing flows in the river, maintenance of wetlands adjacent to the river, groundwater recharge, and Delta/Bay outflow during high flows. There is no real connection made to benefits to the Delta or other affected areas; energy production, water supply for nonhabitat uses, and flood storage could be the real benefits.

No mention is made of the State-identified Gray Rocks Significant Natural Area where Interstate 5 crosses the Reservoir.

The environmental analyses for the CVPIA Least-Cost Yield Increase Plan found 72 miles of impacted streams, not 42 as stated in the Calfed document.

The environmental analyses for the CVPIA Least-Cost Yield Increase Plan found 9 federally-listed species of wildlife and 30 candidate species that could be affected, not 6 and 22 as stated in the Calfed document.

No mention is made of mitigation requirements for the project. Earlier Service estimates have been at least 162,000 acres.

Cumulative effects could include increased diversions from the Sacramento River and associated fish entrainment and impingement, habitat loss from construction of conveyance facilities, and increased human developments.

COTTONWOOD CREEK

See enclosed comments for concerns associated with sensitive species.

Environmental impact assessment is much better for this report, especially salmonid fisheries impacts downstream of the reservoirs. Some benefits were suggested for Sacramento River and Delta resident fish due to higher flows, but this is very questionable and is not supported with any information as how it would occur. Most other impacts listed look ok. General comments above still apply though as do cumulative effects comments listed for Shasta. There is no discussion of mitigation potential for the project and areas required to do it.

LAKE BERRESSA ENLARGEMENT

See enclosed comments concerning sensitive species. Potential exists for adverse effects to listed, proposed, and species of concern.

The scale of this project is massive, increasing Lake Berryessa capacity from 1.6 maf to as much as 14 maf. That is larger than Shasta, Oroville, Trinity, Folsom, and Auburn combined. 15,600 to 43,600 acres of wildlife habitat inundated. The cost of mitigation was not included in the estimates of this project and it will be considerable. It would be difficult to develop a mitigation plan or locate mitigation areas sufficient for a project of this size. The cost of mitigation needs to be calculated, as it is sure to be a substantial portion of the project cost, even at \$3,173 million, and that doesn't include other costs such as the intertie with the Sacramento River,

planning, or relocating residences.

The new dam would be located two miles downstream of Monticello Dam. Fishing "would not be significantly impacted", yet just below the current dam is the best fishing area of Lower Putah Creek and would be inundated. Fisherpeople come from a wide area to fish that section of the stream. Indeed the six miles downstream to the Solano Diversion Dam is the best habitat downstream of the dam.

The project notes that half of Butts Canyon Natural Area and most of Cold Canyon Reserve would be inundated. Cold Canyon is one of the few natural areas available to local residents for hiking and nature observation below the dam. UCD students use this area as a study site. Not mentioned is the proposed Lake Berryessa Wildlife Management Area, which would be totally inundated, and Quail Ridge Reserve. The peninsula of Quail Ridge jutting into Lake Berryessa is one of the last areas with rare, native grasses and hybrid oaks and associated wildlife. It is possible that it is important butterfly habitat. Quail Ridge has recently been incorporated into the UCD Reserve System along with Cold Canyon. Another reserve downstream which may be impacted is Russell Ranch.

Upstream of the dam but there are multiple tributaries such as Elicuerea Creek with splendid fresh emergent wetland habitat at the current dam level that would be inundated. Wetlands listed that are to be inundated include 8 miles of scrub-shrub, 20 miles of forested wetland, 10 acres of shallow marsh and 20 acres of permanent ponds. It is hard to agree with the findings that "the effects of the proposed enlargement ...on wildlife would be mixed", just because waterfowl benefit.

Obtaining adequate gravel locally may be more costly than expected, especially from Cache Creek. A recent referendum regarding gravel mining was met with fierce local debate. It would need to be investigated whether there is still an adequate gravel source. The site of the Putah Creek gravel is not specified. The source of the Putah Creek gravel may need to be investigated as it may be a spawning site for the few anadromous fish that enter Putah Creek from Sacramento River during floods.

Legal problems that may need to be resolved and may impact costs will be the grazing right of the landowners next to the lake that extends down to the 440 M.S.L. line --the current lake level. Further is the suit regarding flows for fisheries below the dam under California Fish and Game Code 5937. The suit to provide extra flows for the fish downstream was achieved, but is now in appeal. "The existing fishery in Lake Berryessa would not be significantly impacted if the reservoir is operated in a manner similar to the present." That it could be operated in a similar manner is not at all assured. "...increases in shoreline...could be beneficial to game fish production." The suit is predominantly about native, coldwater fish.

The heron rookeries on the northern and southwestern shores of the lake, surely they too would be inundated? How does one mitigate for two rookeries? Are there other ones nearby?

The Putah Creek Reconnaissance Report, 1993, refers to additional listed species in lower Putah Creek including Swainson's hawk, Giant garter snake, California red-legged frog, California tiger salamander, red-shouldered hawk, northern harrier, peregrine falcon, and long-billed curlew in addition to those mentioned in this analysis. Loss of Swainson's hawk foraging habitat would have to be included in the mitigation figures.

This project would also include diversion from the Sacramento River, the effects of which will need to be addressed.

SITES/COLUSA RESERVOIR

See the enclosed comments concerning species of concern. Several plant species listed in the document have recently been federally listed.

ENCLOSURES

COMMENTS: MONTGOMERY RESERVOIR

The Service agrees that the special status plant and animal species mentioned in the Montgomery Reservoir proposal warrant additional consideration before the project proceeds. Analysis of the potential effects of the project on each of these species is appropriate. Therefore, the Service recommends thorough and adequate biological surveys be conducted to determine the effects of the project on the species mentioned in the proposal as well as on the plant and animal species discussed below.

The Service is very concerned about the effects of the proposed Montgomery Reservoir project on listed plant species. Of particular concern is the impact of the project on one of the sixteen remaining populations the federally listed endangered Hartweg's golden sunburst (*Pseudobahia bahiifolia*). The population, which is the southeastern-most population in Stanislaus County, grows just over the Merced County line within one-half mile of the proposed area of inundation. In addition, the project is in the vicinity of six listed vernal pool plants. Succulent owl's-clover (*Castilleja campestris* ssp. *succulenta*), Hoover's spurge (*Chamaesyce hooveri*), Colusa grass (*Neostapfia colusana*), and hairy Orcutt grass (*Orcuttia pilosa*) are known from north of the site in Stanislaus County. Succulent owl's-clover, Hoover's spurge, Colusa grass, San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), hairy Orcutt grass, and Greene's tuctoria (*Tuctoria greenei*) are known from south of the site in Merced County. Hairy Orcutt grass and Greene's tuctoria are federally listed endangered, and the remaining species federally listed threatened. Because the project may impact vernal pools that have not yet been discovered within the species' ranges and that may provide valuable habitat for these listed species, the Service recommends thorough botanical surveys in all areas that will be inundated or otherwise directly or indirectly impacted by the construction of the project (see below also). Further, because northern claypan vernal pools are special status plant communities (State rank S1.1), their presence in the project area also indicates that complete botanical surveys of the project area are prudent if potential impacts to special status plant species and communities are to be identified.

The Service recommends that botanical surveys for federal species of concern be conducted well before any project construction efforts are undertaken. Federal species of concern include all listed, proposed, and candidate species as well as species of concern that have been identified in species lists that have been generated by the Sacramento Field Office. Botanical surveys need to be conducted as per Service protocols which are attached. Timing of botanical surveys is crucial to ensure that species are present and qualified botanists are able to make determinations to species (or subspecies) level.

The Service is also concerned that the proposal submitted does not fully consider the potential effects of the project on vernal pool fairy shrimp (*Branchinecta lynchi*), a federally threatened species known from the Snelling quadrangle (quad) where the project site is located as well as from adjacent quads. Similarly, the proposal neglects California tiger salamander (*Ambystoma californiense*), a federal candidate species, also known from Snelling quad and adjacent quads.

The Service notes that the California red-legged frog (*Rana aurora draytonii*) is not a proposed species but has been federally listed as threatened.

In reviewing the proposed projects that have been identified in the CALFED process, an adequate biological assessment of the impacts to any of the proposed projects needs to include an effects analysis. At a minimum, the effects analysis needs to include direct, indirect, and cumulative effects. Additionally, growth-inducing, interrelated and interdependent effects should be clearly and concisely described and analyzed in terms of what projects have

been completed in the past, what other projects are proposed, and what the individual and collective effects of these projects are likely to be.

COMMENTS: COTTONWOOD CREEK RESERVOIR COMPLEX

The Service agrees that the special status plant and animal species mentioned in the Cottonwood Creek Reservoir Complex proposal warrant additional consideration before the project proceeds. Analysis of the potential effects of the project on each of these species is appropriate. Therefore, the Service recommends thorough and adequate biological surveys be conducted to determine the effects of the project on the species mentioned in the proposal as well as on the federally endangered vernal pool tadpole shrimp (*Lepidurus packardii*) and the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*) that have been found in the area of the project.

The Service agrees that plant surveys are critical to making a final determination on the effects of the proposed project on federal plant species of concern. Therefore, the Service recommends that botanical surveys for federal species of concern be conducted well before any project construction efforts are undertaken. Federal species of concern include all listed, proposed, and candidate species as well as species of concern that have been identified in species lists that have been generated by the Sacramento Field Office. Botanical surveys need to be conducted as per Service protocols which are attached. Timing of botanical surveys is crucial to ensure that species are present and qualified botanists are able to make determinations to species (or subspecies) level.

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COMMENTS: LOS BANOS GRANDES

The Service agrees that the special status plant and animal species mentioned in the Los Banos Grandes proposal warrant additional consideration before the project proceeds. Analysis of the potential effects of the project on each of these species is appropriate. Therefore, the Service recommends thorough and adequate biological surveys be conducted to determine the effects of the project on the species mentioned in the proposal.

The Service is concerned about the effect of the Los Banos Grandes proposed project on federal plant species of concern. The Service recommends thorough plant surveys be conducted for all federal species of concern in the project area. In particular, Arbura Ranch jewelflower (*Streptanthus insignis* ssp. *lyonii*) is known from only three quadrangles (quads). The proposal notes that a previous botanical survey identified a number of populations of the species on the project site and two which could be inundated by the project. Because all of the quads on which the species occurs are in the vicinity of the project, the Service is concerned that the direct, indirect and cumulative effects of the project could potentially place the species in danger of extinction. Complete and thorough survey of the project site and surrounding areas would be necessary to accurately determine whether the project is likely to adversely affect Arbura Ranch jewelflower throughout its range. Surveys would also be appropriate for hairless popcorn flower (*Plagiobothrys glaber*) which is presumed extinct but which was known from the quad most affected by the project. All collections of this species since the 1930's have been in the Hollister area. In addition, the Service is concerned about the effect of the project on the special status sycamore alluvial woodland (State rank S1.1) that occurs along Los Banos Creek. This natural community is a valuable biological resource that needs to be considered before the project proceeds.

The Service recommends that botanical surveys for federal species of concern be conducted well before any project construction efforts are undertaken. Federal species of concern include all listed, proposed, and candidate species as well as species of concern that have been identified in species lists that have been generated by the Sacramento Field Office. Botanical surveys need to be conducted as per Service protocols which are attached. Timing of botanical surveys is crucial to ensure that species are present and qualified botanists are able to make determinations to species (or subspecies) level.

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COMMENTS: LAKE BERRYESSA ENLARGEMENT

The Service agrees that the special status plant and animal species mentioned in the Lake Berryessa Enlargement proposal warrant additional consideration before the project proceeds. Analysis of the potential effects of the project on each of these species is appropriate. Therefore, the Service recommends thorough and adequate biological surveys be conducted to determine the effects of the project on the species mentioned in the proposal as well as on the animal species discussed below.

The Service is concerned that the proposal submitted does not fully consider the potential effects of the project on the federally threatened California red-legged frog (*Rana aurora draytonii*), the federally threatened giant garter snake (*Thamnophis gigas*), the federally proposed Sacramento splittail (*Pogonichthys macrolepidotus*), and the federal species of concern California tiger salamander (*Ambystoma californiense*) and western spadefoot toad (*Scaphiopus hammondi*). All but giant garter snake are known from the Lake Berryessa quadrangle (quad) and/or the Walter Springs quad where the existing Lake Berryessa occurs. Giant garter snake is known from the adjacent Capell Valley and Monticello Dam quads.

The Service recommends that botanical surveys for federal species of concern be conducted well before any project construction efforts are undertaken. Federal species of concern include all listed, proposed, and candidate species as well as species of concern that have been identified in species lists that have been generated by the Sacramento Field Office. Botanical surveys need to be conducted as per Service protocols which are attached. Timing of botanical surveys is crucial to ensure that species are present and qualified botanists are able to make determinations to species (or subspecies) level.

In reviewing the proposed projects that have been identified in the CALFED process, an adequate biological assessment of the impacts to any of the proposed projects needs to include an effects analysis. At a minimum, the effects analysis needs to include direct, indirect, and cumulative effects. Additionally, growth-inducing, interrelated and interdependent effects should be clearly and concisely described and analyzed in terms of what projects have been completed in the past, what other projects are proposed, and what the individual and collective effects of these projects are likely to be.

COMMENTS: SHASTA LAKE ENLARGEMENT

The Service agrees that the special status plant and animal species mentioned in the Shasta Lake Enlargement proposal warrant additional consideration before the project proceeds. Analysis of the potential effects of the project on each of these species is appropriate. Therefore, the Service recommends thorough and adequate biological surveys be conducted to determine the effects of the project on the species mentioned in the proposal as well as on the animal species discussed below.

The Service is concerned about the effects of the Shasta Lake Enlargement on several animal species whose ranges are restricted to areas of northern California in the vicinity of Lake Shasta. These federal species of concern include Shasta salamander (*Hydromantes shastae*), Shasta sideband snail (*Mondenia troglodytes*), Siskiyou ground beetle (*Nebria gebleri siskiyouensis*), Trinity Alps ground beetle (*Nebria sahlbergii triad*) and Shasta crayfish (*Pacifastacus fortis*). In particular, because the Shasta sideband snail's range is apparently restricted to the area immediately around Shasta Lake, the species may be especially threatened by lake enlargement. The Trinity Alps ground beetle has only been found in the Trinity Alps. The Shasta crayfish is endemic to the Klamath River drainage and now occurs only in the Pit River and its drainages.

The Service recommends that botanical surveys for federal species of concern be conducted well before any project construction efforts are undertaken. Federal species of concern include all listed, proposed, and candidate species as well as species of concern that have been identified in species lists that have been generated by the Sacramento Field Office. Botanical surveys need to be conducted as per Service protocols which are attached. Timing of botanical surveys is crucial to ensure that species are present and qualified botanists are able to make determinations to species (or subspecies) level.

In reviewing the proposed projects that have been identified in the CALFED process, an adequate biological assessment of the impacts to any of the proposed projects needs to include an effects analysis. At a minimum, the effects analysis needs to include direct, indirect, and cumulative effects. Additionally, growth-inducing, interrelated and interdependent effects should be clearly and concisely described and analyzed in terms of what projects have been completed in the past, what other projects are proposed, and what the individual and collective effects of these projects are likely to be.

COMMENTS: SITES/COLUSA RESERVOIR

The Service agrees that the special status plant and animal species mentioned in the Sites/Colusa Reservoir proposal warrant additional consideration before the project proceeds. Analysis of the potential effects of the project on each of these species is appropriate. Therefore, the Service recommends thorough and adequate biological surveys be conducted to determine the effects of the project on the species mentioned in the proposal as well as on the plant and animal species discussed below.

The Service is concerned about the effect of the Sites/Colusa Reservoir project on federal plant species of concern. The Service recommends thorough plant surveys be conducted for all federal species of concern in the project area. The Service notes that several plant species mentioned in the proposal have recently been federally listed: Hoover's spurge (*Chamaesyce hooveri*), Colusa grass (*Neostapfia colusana*), slender Orcutt grass (*Orcuttia tenuis*), and Greene's tuctoria (*Tuctoria greenei*). Greene's tuctoria is federally listed endangered and the remaining species federally listed threatened. Botanical surveys in the project area and adjacent affected areas are necessary to accurately determine the effects of the project on these species. Surveys would also be appropriate for diamond-petaled California poppy (*Eschscholzia rhombipetala*) and adobe lily (*Fritillaria pluriflora*). The former, which is considered extinct, was known from the Sites quadrangle (quad). The latter is identified in the proposal as a species with large amounts of potential habitat in the project area.

The Service is also concerned that the submitted proposal does not fully consider the potential effects of the project on the federally endangered Conservancy fairy shrimp (*Branchinecta conservatio*) and the federally threatened giant garter snake (*Thamnophis gigas*) that are known from quads likely to be affected by the project.

The Service recommends that botanical surveys for federal species of concern be conducted well before any project construction efforts are undertaken. Federal species of concern include all listed, proposed, and candidate species as well as species of concern that have been identified in species lists that have been generated by the Sacramento Field Office. Botanical surveys need to be conducted as per Service protocols which are attached. Timing of botanical surveys is crucial to ensure that species are present and qualified botanists are able to make determinations to species (or subspecies) level.

In reviewing the proposed projects that have been identified in the CALFED process, an adequate biological assessment of the impacts to any of the proposed projects needs to include an effects analysis. At a minimum, the effects analysis needs to include direct, indirect, and cumulative effects. Additionally, growth-inducing, interrelated and interdependent effects should be clearly and concisely described and analyzed in terms of what projects have been completed in the past, what other projects are proposed, and what the individual and collective effects of these projects are likely to be.